

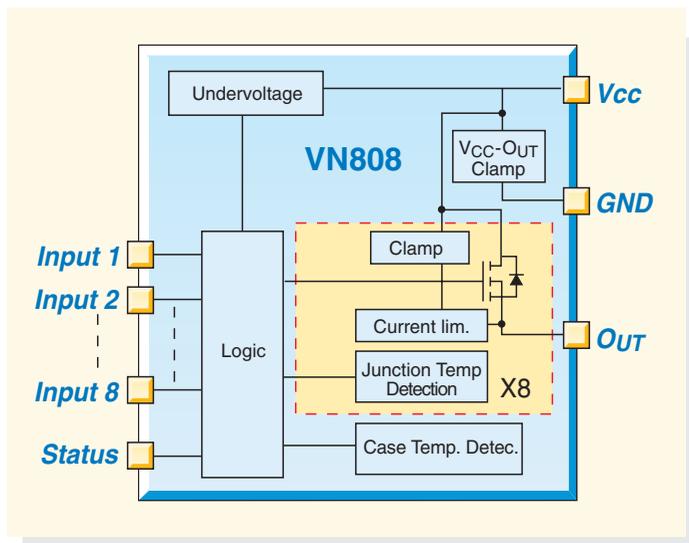
VN808

OCTAL HIGH-SIDE DRIVER FOR THE AUTOMATION MARKET

The VN808 is the first octal single chip high-side driver developed in VIPower M0-3 technology. Both the control and power stage use N-MOS technology. VN808 has 8 different channels with single protection and diagnostic functions integrated on a single chip. The VN808 has been developed considering the needs of the industrial process control market.

Features

- High-power capability PowerSO-36;
- $V_{CC}/2$ compatible inputs;
- Junction over-temperature protection;
- Case over-temperature protection for thermal independence of the channel;
- Current limitation;
- Shorted load protection;
- Under-voltage shutdown;
- Protection against loss of ground;
- Very low stand-by current;
- Compliance with 6100-4-4 IEC test up to 4.4kV.



VN808 internal block diagram

VN808 Electrical Characteristics

V_{CC} [V]	V_{DSS} [V]	$R_{DS(on)}$ [mΩ]	I_{OUT} [A]
10.5 to 36	41	8 x 150	0.7

Built-in Self Protection

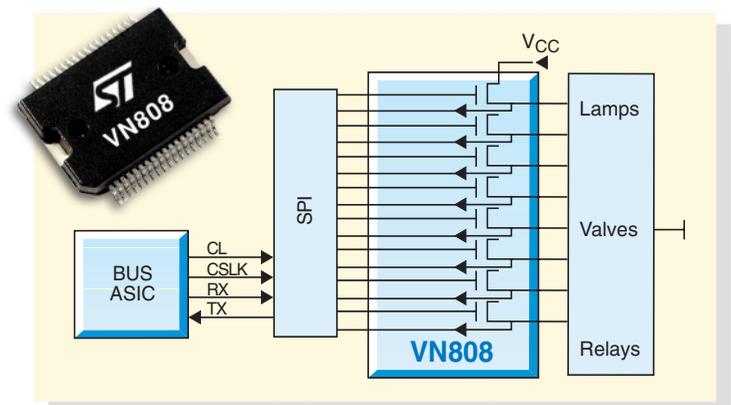
The VN808 has built-in junction over-temperature protection which is thermally independent for each of the eight channels, it has a current limitation (1.1A typical), and a fast demagnetization block clamped at $-52V$ typical. Thanks to the built-in protection each channel is self-protected against load short-circuiting and overloading. The device is able to manage large inductive loads, however care must be taken of the power dissipation related to the switching frequency in free-wheeling conditions. Both under-voltage protection and loss of ground protection with shutdown are added. For the very first time a case over-temperature protection is integrated into the VIPower switch. The typical $R_{DS(on)}$ of the VN808 is 150mΩ per channel at 25°C, while the operating voltage is inside the industrial range of 10.5V to 45V.

Case Temperature Detection and Protection

Double integrated thermal protection exists in VN808 in the form of:

- Junction temperature detection (TTSD) and protection, related to the single channel;
- Case temperature detection (TCSD) and protection, related to the whole device dissipation.

The case temperature protection avoids PCB degradation if a large number of channels are overloaded. In fact the TCSD acts only on the overloaded channel; channels that are not overloaded continue to operate normally.



VN808 in a typical programmable logic controller application